INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 2004	**Park:** Shenandoah NP
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Permit#:
SHEN-2003-SCI-0010

Park-assigned Study Id. #:
SHEN-00286

Project Title:
Hydrology of Big Meadows, Shenandoah National Park, Virginia: Assessment of a Sensitive Wetland System in the Blue Ridge Mountains

Permit Start Date: Jun 03, 2003	**Permit Expiration Date** Oct 01, 2005
Study Start Date: Jun 03, 2003	**Study End Date** Oct 01, 2005

Study Status:
Continuing

Activity Type:
Research

Subject/Discipline:
Water / Hydrology

Objectives:
Description of Recommended Project or Activity

The hydrology of Big Meadows is driven by (1) seasonal changes in climate; (2) rainfall and snowfall events; and (3) pumping for water supply. Ground-water levels respond to all of these driving variables. The level of water in the fens, and therefore their lateral extent in terms of saturated or nearly saturated areas, likewise vary. The space-time variations in water levels is precisely the knowledge needed to assist in management of Big Meadows. The best tools for studying management options are monthly water balance models, both standard climatological water balances and balances informed by using a ground-water model. The primary data necessary to develop and calibrate such models are meteorological data and data on ground-water levels. A full meteorological station operates at Big Meadows and these data will be available for this study. The work in this project will therefore concentrate on collecting additional data on ground water, on analyzing these data, and on synthesizing the data through the use of models.

Findings and Status:
The majority of work was focused on installation of shallow piezometers. The original plan for construction had to be changed. The nature of the regolith made it impossible to auger to the approximately one-meter depth required. Thus, the diameter of the constructed hole had to be increased. This necessitated getting an approved archaeologist to work with us at each proposed site for a piezometer. We finally got approval for the needed piezometers in October 2004.

Four piezometers have been completed to date. Automatic water-level recorders were installed on two of these wells in Fall 2004 and have recorded

continuously since. These records are being analyzed as part of our goal of producing a computationally useful water-balance model for Big Meadows.

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?

No

Funding provided this reporting year by NPS:	**Funding provided this reporting year by other sources:**
30000	0

Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college

Full name of college or university:	**Annual funding provided by NPS to university or college this reporting year:**
University of Virginia	30000